

We claim:

1. A method of managing one or more local resource properties, each having a value, by one or more managed network devices in a network comprising a network management system and a central data store, the method comprising the steps of:
  - (a) monitoring the value of said one or more local resource properties;
  - (b) generating a learning event report comprising the value of at least one of the one or more local resource properties; and
  - (c) transmitting the learning event report to the central data store;wherein the value of at least one of the one or more local resource properties is recorded at the central data store and made available to the network management system for asynchronous processing.
2. The method of claim 1, wherein the central data store is a directory server.
3. The method of claim 2, wherein the step of transmitting the learning event report to the central data store comprises the step of exchanging one or more Lightweight Directory Access Protocol messages.
4. The method of claim 1, wherein the one or more local resource properties comprise one or more internal resource properties.
5. The method of claim 2, wherein the one or more internal resource properties comprise one or more properties selected from the group consisting of: managed network device hardware configurations including network modules installed; managed network device software installations including the types of software, software version levels, and the date when such information was last updated; and managed network device identity information including device name, serial number of the chassis or primary management processor, location information, type of device, network interface module name, network

interface module slot number, network interface module part number, network interface module hardware revision level, network interface module serial number, and network interface module date of manufacture.

- 5     6. The method of claim 1, wherein the one or more local resource properties comprise one or more connectivity properties.
7. The method of claim 6, wherein the one or more connectivity properties comprise  
10     properties selected from the group consisting of: the OSI network model layer 2 and layer 3 addresses of an edge device, identification of the network interface module where the edge device is connected, speed of a port where the edge device is connected, one or more network protocols being used by the edge devices or systems, and an administrative and operational state of the link connecting to the edge device.
- 15     8. The method of claim 1, wherein the step of monitoring comprises the steps of detecting one or more learning events and periodically polling for a current value of the one or more local resource properties.
- 20     9. The method of claim 8, wherein the step of periodically polling comprises the step of polling for the value of the one or more learning event properties at a polling interval between 5 seconds and 5 minutes.
- 25     10. The method of claim 8, wherein the learning event report consists essentially of a value of at least one of the one or more local resource properties different from the value of the at least one of the one or more local resource properties of a preceding learning event report.
11. The method of claim 8, wherein the method further includes, after the step of detecting one or more learning events, assessing the priority of the learning event detected.

12. The method of claim 11, wherein the method further includes, after assessing the priority of the learning event detected, transmitting the learning event report to the central data store substantially immediately.
- 5 13. The method of claim 1, wherein the method further includes, prior to monitoring value of one or more local resource properties, the step of acquiring the most recent value of each of the one or more local resource properties from an internal memory when the one or more managed network devices are initialized.
- 10 14. A managed network device characterized by one or more local resource properties, the managed network device being operatively connected to a network comprising a network management system, one or more managed network devices, and a central data store, the device comprising a local resource manager for:
- 15 (a) monitoring the value of one or more local resource properties;
- (b) detecting a change to the one or more local resource properties;
- (c) generating one or more learning event reports, each learning event report comprising the value of one or more local resource properties;
- (d) transmitting the one or more learning event reports to the central data store;
- 20 wherein the value of at least one of the one or more local resource properties is recorded at the central data store and made available to the network management system for asynchronous processing.
15. The managed network device of claim 14, wherein the central data store is a directory server enabled to exchange one or more Lightweight Directory Access Protocol messages.
- 25 16. The managed network device of claim 14, wherein the one or more local resource properties comprise internal resource properties.

17. The managed network device of claim 16, wherein the one or more internal resource properties comprise one or more properties selected from the group consisting of: managed network device hardware configurations including network modules installed; managed network device software installations including the types of software, software version levels, and the date when such information was last updated; and managed network device identity information including device name, serial number of the chassis or primary management processor, location information, type of device, network interface module name, network interface module slot number, network interface module part number, network interface module hardware revision level, network interface module serial number, and network interface module date of manufacture.
18. The managed network device of claim 14, wherein the one or more local resource properties comprise one or more connectivity properties.
19. The managed network device of claim 18, wherein the one or more connectivity properties comprise properties selected from the group consisting of: the OSI network model layer 2 and layer 3 addresses of an edge device, identification of the network interface module where the edge device is connected, speed of a port where the edge device is connected, one or more network protocols being used by the edge devices or systems, and an administrative and operational state of the link connecting to the edge device.
20. The managed network device of claim 14, wherein the managed network device is a switching device further comprising:
- (a) a plurality of network interface modules;
  - (b) one or more packet processors for performing packet parsing and ingress packet processing necessary to perform switching routing; and
  - (c) one or more memory devices for retaining one or more rules sets for switching and routing.

21. An asynchronous network resource management system comprising:

- 5       (a) at least one central data store;
- (b) one or more local resource properties, each having a value;
- (c) a plurality of managed network devices adapted to monitor the value of each of the one or more local resource properties and transmit the value of each of the one or more local resource properties to the at least one central data store; and
- 10       (d) at least one network management system adapted to retrieve the value of each of the one or more local resource properties from the at least one central data store.

22. The asynchronous network resource management system of claim 21, wherein the one or more local resource properties comprise internal resource properties.

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23. The asynchronous network resource management system of claim 21, wherein the one or more internal resource properties comprise one or more properties selected from the group consisting of: managed network device hardware configurations including network modules installed; managed network device software installations including the types of software, software version levels, and the date when such information was last updated; and managed network device identity information including device name, serial number of the chassis or primary management processor, location information, type of device, network interface module name, network interface module slot number, network interface module part number, network interface module hardware revision level, network interface module serial number, and network interface module date of manufacture.

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24. The asynchronous network resource management system of claim 21, wherein the one or more local resource properties comprise one or more connectivity properties.

25. The asynchronous network resource management system of claim 24, wherein the one or more connectivity properties comprise properties selected from the group consisting of: the OSI network model layer 2 and layer 3 addresses of an edge device, identification of the network interface module where the edge device is connected, speed of a port where the edge device is connected, one or more network protocols being used by the edge devices or systems, and an administrative and operational state of the link connecting to the edge device.

26. In a managed network comprising a plurality of managed network devices and a central data store, a method of managing a plurality of local resource properties by one of the managed network devices, the method comprising the steps of:

- (a) monitoring on the managed network device the plurality of local resource properties; and
- (b) communicating from the managed network device to the central data store a learning event report including values for respective ones of the local resource properties that changed since an immediately preceding learning event report; wherein the values are recorded at the central data store and made available to the network management system.

27. The managed network of claim 26, wherein the communicated learning event report fails to include values for the local resource properties that did not change since the immediately preceding learning event report.